Patent Claims

1. Process for producing an object that has optical layers (2, 3, 4), with the following process steps:

1.1 To a substrate (1) of plastic material several optical layers (2, 3, 4) are applied.

1.2 the optical layers (2, 3, 4) are applied by means of a chemical plasma-impulse vaporization (PICVC).

2. Process according to claim 1, characterized in that the layers (2, 3, 4) are constructed as cold-light mirrors.

3. Process according to claim 2, characterized in that the layers (2, 3, 4) have different refraction coefficients.

4. Process according to one of claims 1 to 3, characterized in that the total duration of the plasma action amounts to at least 1/1000 of the total action-free time span, and is at most equal to this time span.

5. Process according to claim 4, characterized in that an action impulse of the plasma action lasts between 0.1 and 10 ms, preferably between 0.5 and 5 ms.

6. Device according to one of claims 1 to 5, characterized in that the coating rate of the plasma action per time unit and per surface unit is > 10 nanometer/min., preferably > 100 nanometer/min.

7. Process according to one of claims 1 to 6, characterized in that as material of the substrate (1) one of the following substances is used: Cycloolefin

polymers (COP) Cycloolefin copolymers (COC)

Polymethyl methacrylate (PMMA)

Derivatives of these substances

8. Coated object, comprising a substrate of plastic material as well as a plurality of coatings, produced with a process according to one of claims 1 to 7.

9. Coated object according to claim 8, characterized in that the object is an optical component such as a lens, a prism or a reflector.

10. Coated object according to claim 9, especially for use in the automobile industry

10.1 with a funnel-shaped base body that has a reflecting surface;

10.2 the base body consists of plastic material which is temperature-stable up to at least 100^0C;

10.3 the reflecting surface is constructed as a cold-light mirror consisting of a plurality of layers of different refraction coefficients;

10.4 the alternating layers are applied to the K-substrate by means of at least one of the following processes: - Plasma impulse (Pi) - Chemical vaporization (CVB) (sic) - Phase-impulse chemical vaporization (PICVD).